CLAIMS

What is claimed is:

1   1.   A method of forwarding data packets in a network device having an operating system,

2   the method comprising:

3   initiating a switching microdriver to retrieve a data packet; and

4   forwarding the data packet to or from the switching microdriver without involvement

5   of the operating system.

1   2.   The method of claim 1 further comprising performing switching functions by the

2   switching microdriver to forward the data packet.

1   3.   The method of claim 2 wherein performing switching functions by the switching

2   microdriver to forward the data packet includes making any one of a layer 2 and a layer 3

3   switching decision in the switching microdriver.

1   4.   The method of claim 3 further comprising forwarding the data packet to a network

2   interface microdriver.

1   5.   The method of claim 1 wherein no context switching is performed by the operating

2   system in conjunction with forwarding the data packet to or from the switching microdriver.

1   6.   The method of claim 4 further comprising forwarding the data packet to a network

2   interface microdriver.

1   7.   The method of claim 1 wherein no context switching is performed by the operating

2   system in conjunction with forwarding the data packet to or from the switching microdriver,

3   the method further comprising performing switching functions by the switching microdriver

4   to forward the data packet.

1   8.   The method of claim 1 wherein forwarding the data packet to or from the switching

2   microdriver includes receiving the data packet from a network interface microdriver.

1   9.   The method of claim 1 wherein the switching microdriver may perform the functions

2   of a network interface driver for the operating system and may perform the functions of a

3   network interface microdriver without involvement of the operating system.

1   10.   A method of forwarding data packets in a network device having an operating system,

2   the method comprising:

3   indicating that a data packet has been received by a component of the network device

4   from a network interface port;

5   initiating a first network interface microdriver to process the data packet;

6   receiving the data packet at the first network interface microdriver from the

7   component of the network device; and

8   sending the data packet from the first network interface microdriver to a switching

9   microdriver without involvement of the operating system.

11. The method of claim 10 further comprising forwarding the data packet from the switching microdriver to a selected location without involvement of the operating system.

12. The method of claim 11 wherein involvement of the operating system comprises the operating system performing a context switch.

13. The method of claim 11 wherein involvement of the operating system comprises the operating system initiating an interprocess communication facility.

14. The method of claim 11 wherein the selected location is a second network interface microdriver.

15. The method of claim 11 wherein forwarding the data packet from the switching microdriver to a selected location without involvement of the operating system includes making any one of a layer 2 and a layer 3 switching decision in the switching microdriver.

16. The method of claim 11 wherein the switching microdriver may perform the functions of a network interface driver for the operating system and may perform the functions of a network interface microdriver without involvement of the operating system.

17. A method of forwarding data packets in a network device having an operating system, the method comprising:

3   forwarding a data packet at the device driver layer in the network device, without the

4   operating system performing context switching in conjunction with forwarding the data

5   packet.

1   18.   The method of claim 17 further comprising:

2   indicating that the data packet has been received by a component of the network

3   device from a network interface port;

4   initiating a first network interface microdriver to process the data packet;

5   receiving the data packet at the first network interface microdriver from the

6   component of the network device; and

7   sending the data packet from the first network interface microdriver to a switching

8   microdriver.

1   19.   The method of claim 18 further comprising forwarding the data packet from the

2   switching microdriver to a selected location.

1   20.   The method of claim 19 wherein the selected location is a second network interface

2   microdriver.

1   21.   The method of claim 19 wherein forwarding the data packet from the switching

2   microdriver to a selected location includes making any one of a layer 2 and a layer 3

3   switching decision in the switching microdriver.

1   22.   A machine-readable medium that provides instructions, which when executed by a

2   processor, cause said processor to perform operations comprising:

3   initiating a switching microdriver to retrieve a data packet; and

4   forwarding the data packet to or from the switching microdriver without involvement

5   of the operating system.

1   23.   The machine-readable medium of claim 22 wherein said instructions cause said

2   processor to perform operations further comprising switching functions by the switching

3   microdriver to forward the data packet.

1   24.   The machine-readable medium of claim 23 wherein performing switching functions

2   by the switching microdriver to forward the data packet includes making any one of a layer 2

3   and a layer 3 switching decision in the switching microdriver.

1   25.   The machine-readable medium of claim 24 wherein said instructions cause said

2   processor to perform operations further comprising forwarding the data packet to a network

3   interface microdriver.

1   26.   The machine-readable medium of claim 22 wherein no context switching is performed

2   by the operating system in conjunction with forwarding the data packet to or from the

3   switching microdriver.

1   27.   The machine-readable medium of claim 25 wherein said instructions cause said

2   processor to perform operations further comprising forwarding the data packet to a network

3   interface microdriver.

1   28.   The machine-readable medium of claim 22 wherein no context switching is performed

2   by the operating system in conjunction with forwarding the data packet to or from the

3   switching microdriver, said processor further performs switching functions by the switching

4   microdriver to forward the data packet.

1   29.   The machine-readable medium of claim 22 wherein forwarding the data packet to or

2   from the switching microdriver includes receiving the data packet from a network interface

3   microdriver.

1   30.   The machine-readable medium of claim 22 wherein the switching microdriver in a

2   first instance performs the functions of a network interface driver for the operating system and

3   in a second instance performs the functions of a network interface microdriver without

4   involvement of the operating system.

1   31.   A system comprising:

2   an interprocess communication facility comprising an operating system aware portion

3   and a non-operating system aware portion;

4   a switching microdriver coupled to said interprocess communication facility to

5   perform switching decisions without using an operating system aware portion of said

6   interprocess communication facility;

7   a network microdriver coupled to said switching microdriver; and

8   a physical port coupled to said network microdriver.

1   32.   The system of claim 31 wherein said switching microdriver retrieves a data packet and

2   forwards said data packet to or from said switching microdriver without involvement of said

3   operating system.

1   33.   The system of claim 32 wherein said switching microdriver performs switching

2   functions to forward the data packet.

1   34.   The system of claim 33 wherein said switching microdriver performs switching

2   functions to forward said data packet including making any one of a layer 2 and a layer 3

3   switching decision in said switching microdriver.

1   35.   The system of claim 32 wherein no context switching is performed by said operating

2   system in conjunction with forwarding said data packet to or from said switching microdriver.

1   36.   The system of claim 32 wherein no context switching is performed by said operating

2   system in conjunction with forwarding said data packet to or from said switching microdriver

3   and said switching microdriver performs switching functions to forward the data packet.

1   37.   The system of claim 34 wherein said switching microdriver forwards said data packet

2   to said network interface microdriver.

1   38.   The system of claim 35 wherein said switching microdriver forwards the data packet

2   to said network interface microdriver

1   39.   The system of claim 32 wherein forwarding the data packet to or from the switching

2   microdriver includes receiving the data packet from a network interface microdriver.

1   40.   The system of claim 32 wherein said switching microdriver in a first instance performs

2   the functions of a network interface driver for the operating system and in a second instance

3   performs the functions of a network interface microdriver without involvement of the

4   operating system.